NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date APRIL 17, 1989 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
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Bill Monroe	[illegible]	[illegible]
M.E. Mitchell	[illegible]	[illegible]
Bob [illegible]	Byram	Santa Fe
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Charles A. Sims	[illegible]	Dallas Tx
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Terrence D. Klein	Marathon Oil Co.	Houston, Tx.

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

17 April 1989

COMMISSION HEARING

IN THE MATTER OF:

Application of Sun Exploration and Production Company for amendment of Division Orders Nos. R-8644-A and R-8734, Lea County, New Mexico.	CASE 9651

BEFORE: William J. Lemay, Chairman
Erling Brostuen, Commissioner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:	Robert G. Stovall Attorney at Law Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico
For Sun Exploration and Producing Company:	William F. Carr Attorney at Law CAMPBELL & BLACK P. O. Box 2208 Santa Fe, New Mexico 87501

A P P E A R A N C E S Cont'd

For Phillips Petroleum Co.:	Karen Aubrey Attorney at Law KELLAHIN, KELLAHIN & AUBREY P. O. Box 2265 Santa Fe, New Mexico 87501
For Mobil Exploration and Production USA, agent for Mobil Producing Texas & New Mexico:	Anne B. Tallmadge Attorney at Law MONTGOMERY & ANDREWS Post Office Box 2307 Santa Fe, New Mexico 87504
For Marathon Oil Company:	Lawrence D. Garcia Attorney at Law Marathon Oil Company P. O. Box 3128 Houston, Texas 77253
For McElvain Oil and Gas Company:	A. J. Losee Attorney at Law LOSEE, CARSON, HAAS & CARROLL P. O. Drawer 239 Artesia, New Mexico 88211

I N D E X

I N D E X Cont'd

E X H I B I T S

E X H I B I T S Cont'd

MR. LEMAY: Case 9651.

MR. STOVALL: Application of Sun Exploration and Production Company for amendment of Division Orders Nos. R-8644-A and R-8734, Lea County, New Mexico.

MR. LEMAY: Appearances in Case Number 9651.

MR. CARR: May it please the Commission, my name is William F. Carr, with the law firm of Campbell & Black, P. A., of Santa Fe.

We represent Sun and I have two witnesses.

MR. LEMAY: Any additional appearances in this case?

MR. AUBREY: May it please the Commission, my name is Karen Aubrey with the firm of Kellahin, Kellahin & Aubrey.

I represent Phillips Petroleum Company and I have one witness.

MR. LEMAY: Thank you. Additional appearances in the case?

MR. GARCIA: May it please the Commission, my name is Larry Garcia, Marathon Oil Company, and I'd like to enter an appearance on behalf of Marathon Oil Company.

MR. LEMAY: Thank you, Mr. Garcia.

MR. LOSEE: My name is A. J. Losee, Losee, Carson, Haas & Carroll, P. A., Artesia, New Mexico, appearing on behalf of McIlvain Oil and Gas Company.

MS. TALLMADGE: My name is Anne Tallmadge of the Montgomery & Andrews in Santa Fe. We're here on behalf of Mobil Exploration and Producing, USA, agent for Mobil Producing Texas & New Mexico.

We have two witnesses but it's possible that we won't call either.

MR. LEMAY: Thank you. Mr. Garcia, do you have any witnesses?

MR. GARCIA: No witnesses.

MR. LEMAY: Jerry, do you have any witnesses?

MR. LOSEE: I don't believe so, Mr. Lemay.

MR. LEMAY: Additional appearances in this case?

Will those witnesses that plan to give testimony please rise and raise your right hand and we'll swear all of you in at one time.

Those that are optional wit-

nesses do the same. You don't have to be called.

(Witnesses sworn.)

MR. LEMAY: You may be seated.

Mr. Carr.

MR. CARR: May it please the Commission, I have a very brief opening statement.

Sun Exploration and Production Company is before you today seeking amendment of two Commission orders that were entered last September 19, 1988. We're talking about Order 8644-A and 8734.

Both of these orders address the development of Section 22, Township 17 South, Range 35 East, in the South Shoe Bar Atoka Field.

As a result of these two orders, there are now three nonstandard spacing or proration units in Section 22. This is in a reservoir where last fall everyone agreed there was communication over large areas and wells were capable of easily draining one another. We have a 240-acre unit for Mr. McIlvain, a 160-acre unit for Phillips, and a 240-acre unit for Mobil.

The problem for Sun is that we operate a standard 320-acre unit in Section 15, immediately north of Section 22, and on that standard 320-acre unit

have one well drilled at a standard location.

The Commission was aware that when it authorized the nonstandard units and three wells in Section 22 that certain restrictions would have to be imposed on the producing rates from those wells. The first two documents in the packet of material that I gave to you are copies of the orders that we're seeking amendments to.

Finding 15 in each of the orders noted that operators in nonprorated pools have an opportunity to sell maximum deliverability from their wells.

That finding then went on to note that a penalty assessed against deliverability would in fact protect correlative rights.

The next finding noted, however, that the data presented at that hearing did not relate to deliverability and absent deliverability information the Commission elected to use recorded flow rates as the basis against which penalties would be imposed. They took a maximum flow rate of 6000 MCF per day and then in the following finding projected the decline rate for the reservoir of 10 percent a year starting in 1990.

The problem is that the producing rates in the pool are declining rapidly and they are substantially below these penalties and with a 6000 a day

base figure against which a penalty is applied, we have no penalty at all, and with the pools declining at the rates that this pool is now declining, the 10 percent is unrealistic.

And so we were confronted with a situation where we had recognized the penalties were appropriate, but because of the way the reservoir was performing, the penalties were in fact meaningless.

So we're here before you today with what we believe is a short presentation directed at one aspect of the prior hearing, and that is the protection of correlative rights. We're going to ask you to amend the prior orders to provide for imposition of a penalty based on semi-annual deliverability tests, for we believe that in so doing correlative rights can be protected and if the orders are not amended they are ineffective in terms of the protection of correlative rights.

MR. LEMAY: Thank you, Mr. Carr.

Ms. Aubrey, would you care to make an opening statement?

MS. AUBREY: Thank you, Mr. Lemay.

Phillips is here opposing the application of Sun primarily for three reasons.

The first of these reasons is that Phillips came before you and received approval of its nonstandard 160-acre unit. The Commission granted the Phillips well production of 3-million a day. After that order was entered, Phillips went out and drilled its well based upon that order of the Commission.

In order to make this an economic prospect for Phillips to drill this well, the producing rate had to be a rate in the neighborhood of the one that Phillips was granted.

Sun now comes in six months to nine months later and says that they want to reduce Phillips' ability to produce (not clearly audible).

The second reason that Phillips opposes this matter is that Sun drilled and completed its well in December of 1987. It did not put its well on line and start producing the well until August or September of 1988.

We intend to show you today that by that delay Sun itself lost about 3/4ths of a billion in reserves and that that loss of reserves was due solely to its inability or its failure to produce the gas from that well.

Finally, we will tell you that because of the characteristics of the Phillips well we must

have at least a million a day producing rate in order to lift the liquids from the well; otherwise the well will log off and again Phillips has to spend money on the well and the well will be uneconomic.

We ask you to deny the Sun application; to leave the parties in Section 22 the way you left them after the July, 1988, hearing, which was with a reduced production capability but one that was based on a rational basis and also one that was created by the Commission before Phillips drilled the well.

MR. LEMAY: Mr. Garcia, an opening statement?

MR. GARCIA: Marathon does not propose to put on a case at this time.

MR. LEMAY: Mr. Losee? Ms. Tallmadge?

Mr. Carr, you may continue.

MR. CARR: At this time I would call Shelley Lane.

SHELLEY L. LANE,

being called as a witness and being duly sworn upon her oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name for the record, please?

A Shelley L. Lane.

Q Ms. Lane, where do you reside?

A I live in Midland, Texas.

Q By whom are you employed and in what capacity?

A I'm employed by Sun Exploration and Production Company as a production geologist.

Q Have you previously testified before the Division or this Commission and had your credentials as a geologist accepted and made a matter of record?

A Yes, I have.

Q Are you familiar with the application filed in this case on behalf of Sun Exploration and Production Company?

A Yes.

Q Have you studied the South Shoe Bar Atoka Gas Pool?

A Yes, I have.

Q Have you prepared certain exhibits for presentation here today?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. LEMAY: They're acceptable.

Q Would you briefly state what Sun seeks with this application?

A Yes. Sun is seeking an amendment of the Commission Orders R-8644-A and R-8734, to establish new and meaningful production limitations for wells located in Section 22 of 17 South, 35 East, which have less than 320 acres dedicated to them.

Q I initially would ask you to provide the Commission with some brief background information on the pool and, first of all, I'd like you to just state when the pool was initially developed and what has brought us to this hearing today.

A The first development of the pool was in approximately November of 1984 when HNG drilled a well in Section 14.

The -- subsequent to that McIlvain Oil & Gas Properties re-entered a well in the northeast of

Section 22. That's the New Mexico AC State No. 1, and that was -- that well was re-entered on a nonstandard proration unit approved by the Commission with 240 acres dedicated to it.

This well has resulted, and this non-standard proration unit has resulted, in subsequent development. There are now three wells in Section 22 and these wells basically have unlimited production rates based on what they currently produce.

Q Now, Mr. Lane, were you present during the 1988 hearing at which the nonstandard units were -- as a result of which the nonstandard units were approved?

A Yes, I was present, and at that time Sun called for 320-acre spacing and proration units.

Q And are you familiar with the orders that resulted from that hearing?

A Yes. In that -- the orders that resulted the Commission did recognize the potential for the violation of correlative rights and imposed penalties on the wells with short acreage; however, in the absence of deliverability tests, the maximum recorded flow rate of 6-million a day was used and this high flow rate combined with the relatively low decline percentages have resulted in no wells being effectively penalized.

Q Now, since the 1988 orders were entered,

what has happened in this pool?

A Well, since that time production declines have rendered the penalties meaningless and there have been two additional development wells drilled in Section 22.

Q Would you refer to what has been marked for identification as Sun Exploration and Production Exhibit Number One, identify that, and review the information on that exhibit for the Commission.

A Yes. This is a map of the area surrounding the South Shoe Bar Atoka Field. On the map the green dashed line shows the outline and the current boundaries of the South Shoe Bar Atoka Field.

Then in red the proration units are outlined and also the wells are spotted with their operators just above the well symbols on this map.

The thing to note here is that Sun's well in Section 15 is on a 320-acre standard unit. Then if you move down to Section 22, the McIlvain well is on a 240-acre unit. The Phillips well is on a 160 acres and the Mobil well is on 240 acres.

Q Would you now refer to Sun Exhibit Number Two, your cross section A-A', and review that for the Commission?

A Yes. If you look down in the righthand

corner of the cross section, there is an index map and this map is essentially the same map that we just looked at with the proration units outlined. It does have the line of the cross section on this map and from A to A' moves from west to east.

The cross section goes from the Phillips well in the northwest of Section 22 up to the Sun well in Section 15, then back down to the McIlvain well in the northeast of 22, and then to the ARCO Well in Section 23.

The cross section itself is hung on the Atoka shale marker above the Lower Atoka pay sand and below that you'll nctice that the Atoka, Lower Atoka pay sand, which is colored in yellow, has been correlated across the field and across these wells and these wells are correlative.

The other thing of interest here is that the Sun well in Section 15 has approximately three times as much net pay as the Phillips and the McIlvain wells, and we are on a standard 320-acre unit.

The only other thing I would tell you about the reservoir is that it is a sandstone reservoir confirmed from well cuttings, and also some of the log characteristics.

Q The Lower Atoka pay zone is the primary producing interval in this reservoir?

A That's correct, and the other thing I might add is that the perforations are shown on each well and that each of the wells in this -- on the cross section were perforated in this Lower Atoka Sand.

Q Would you now go to Sun Exhibit Number Three and identify that for us?

A This exhibit is a Lower Atoka net pay isopach, which is based on an 8 percent porosity cutoff. It basically shows that the reservoir -- that this is one reservoir. Again you'll note that Sun has 26 feet of pay and that Mr. McIlvain's well has 8 feet of pay and Phillips well has 7 feet of pay. The Mobil well down in the southeast of Section 22, we do not have the information on that although the well has been drilled.

Q And now go to your Exhibit Number Four, please.

A This is a bar graph showing a net pay comparison. It's basically showing the same thing that the isopach has and the thing to note here is just how graphically stands out that Sun's well has approximately three times the net pay as the other wells in the field.

Q Based on your review and study of the South Atoka Shoe Bar Gas Pool, what conclusions have you reached?

A Geologically the wells in the South

Atoka Shoe Bar Field are in communication and, you know, there is potential to drain across boundaries because they are in communication geologically and that's the only conclusion I'd like to give on this.

Q Would you identify what is marked as Sun Exhibit Number Five?

A Yes. These are -- this is copies of the letters mailed by our attorneys giving notice and it also includes all the return receipts.

Q In your opinion will granting the application and amending the provisions to require more rigorous penalties be in the best interest of conservation and prevention of waste and the protection of correlative rights?

A Yes.

Q Will Sun also call an engineering witness to testify in this matter?

A Yes, we will.

Q Were Exhibits One through Four prepared by you?

A Yes.

Q And Exhibit Number Five is the notice of application.

A Correct.

MR. CARR: At this time we would move admission of Sun Exhibits One through Five.

MR. LEMAY: Without objection Exhibits One through Five will be admitted into the record.

MR. CARR: Nothing further.

MR. LEMAY: Thank you, Mr. Carr.

Cross examination.

MS. AUBREY: Yes.

CROSS EXAMINATION

BY MS. AUBREY:

Q Ms. Lane, let me have you direct your attention to Exhibit Number Two, which is your cross section.

A Yes.

Q On Exhibit Number Two you show the Lower Atoka present in the ARCO well, is that right?

A Yes. There's a -- there's a gamma ray indication of the sandstone developing on the log.

Q And how many feet of pay to you conclude the ARCO well has?

A The -- based on the log and also based on the appropriations and production they do not have any net pay and it was a dry hole in the Atoka.

Q Let me have you look now at your Exhibit Number Three. Do you have that in front of you?

A Yes, I do.

Q You show a dip down; in effect you're pointing toward that Mobil Well, is that right?

A Right.

Q On what do you base that?

A That's based on communication with the Mobil geologist. I do not have the log information but he did tell me that they had some Lower Atoka pay sand and that it was greater than zero, so that's just -- I didn't put any number there. It's just based on personal communications.

Q So you don't have any idea of how many feet that is.

A I don't.

Q Is there anything else that you base that dip down on?

A No, just based on the fact that they were -- that they did have some sand and he also told me that they were completing the well.

Q Now you show on the Section 15 the well in the east half of Section 15.

A Right.

Q A well with 14 feet of pay?

A Yes. That had 14 feet of pay based on an 8 percent porosity cutoff.

Q And do you know what the status of that well is?

A I believe the last that I talked to Mr. Trainer, they did perforate and test the well. It was producing gas and I don't -- I think at this time the only conclusion I could draw is they may have had some mechanical problems. I know that the well -- their pressure declined and they had some difficulties with it and I can't draw any conclusion other than it could possibly be a mechanical problem.

Q As of now, though, it's your understanding that's a dry hole?

A I don't think it's producing. I don't know if they will -- if they will do anything to get it back. I know they've attempted several fracs.

Q Can you correlate that status of the well, not producing with 14 feet of pay?

A Other than just a mechanical problem I cannot. It's -- the well does look productive based on the log characteristics.

Q What did you use for your control to the north, in the north half of Section 15, to draw your contours?

A The only thing I used there is just a trend in which all I'm saying there is that the Mobil --

the Mobil well we know has some -- some amount of pay. There may be more of a north/south trend and that trend is basically undefined to the north until, you know, until a well is drilled to the north in the north half of 15, we don't really know what's there.

Q There's no Atoka production in the north half of 15?

A No, there isn't.

Q Now, you show the Sun Well with 26 feet of pay and the Phillips Well with 7, is that right?

A Right.

Q Dc you know what the production rates for those two wells are?

A We will have a reservoir engineer that will testify to those production rates and I would like to defer to him.

Q I believe you testified, Ms. Lane, about production declines in this reservoir. On what do you base that testimony?

A Well, I've seen the production curves and I can give you a, you know, just a statement that I know that the production has declined.

Q That's not a conclusion that you've drawn yourself, is it?

A Yes, it's based on -- based on produc-

tion figures that I've seen in the past.

Q Where did you get those production figures?

A You obviously want me to testify to that so I can go ahead and do that.

It's -- I believe the McIlvain well is somewhere in the neighborhood of 3.2-million a day.

The Sun well is somewhere around 2.8-million a day.

And the Phillips well was around 3.9 MCF a day.

Q What are the dates of those figures?

A The McIlvain well and the Sun well, they were based on November, end of November figures and the Phillips number is based on what they went on line as producing.

Q Do you know when --

A I think that was in December.

Q Do you when the Phillips well went on line?

A It was December, I believe.

Q And do you know what production declines there were in the Sun well during the time that the -- I'm sorry, in the McIlvain well during the time that the Sun well was completed but not producing?

A Will you state that again?

Q Sure. You've testified that the McIlvain well has been on 3.2?

A Right.

Q And the Sun well is now at 2.8?

A Uh-huh.

Q Do you know what the decline was in the McIlvain well during the eight or nine months that the Sun well was completed but not producing?

A No.

Q Your cross section and your isopach show us that the Sun well had significantly more feet of net pay than the McIlvain well, is that right?

A Correct.

Q How do you account for the good performance of the McIlvain well and what you claim to be relatively poor performance of the Sun well?

A Well, I think, based on what I've -- based on my communication with my reservoir engineer, it's strictly related to pressure in the reservoir. In other words, McIlvain's well came on at almost virgin pressure and Sun's well came on at a significant time later and there was pressure.

Q And what was the IP of the Sun well?

A The CAOF was around 9-million a day.

Q And what's the -- what's the maximum for the (inaudible)?

A I can't tell you that.

Q Are you familiar with the ownership of interest in the Sun well?

A Sun owns 75 percent and Mobil owns 25 percent. That's working interest.

Q Do you know whether or not the McIlvain well is now on a compressor?

A I believe from personal communication with Mr. Trainer that it is.

Q In your Exhibit Number Three you have located the large amount of the reserves well within Section 8, is that right?

A Correct.

Q Given the production from the McIlvain well and the present production from the Sun well, isn't it more reasonable to locate those reserves (not clearly heard).

A Not based on geology and the log characteristics.

Q What control did you use to draw your -- your -- the eastern border of your 30-foot line?

A It's -- it's based on the HNG well having only 6 feet of pay and just consistent contouring.

Q Now your 10-foot line is not closed.

A Right.

Q Why is that?

A The -- there have been no wells drilled farther east and so it's my opinion that there -- we really don't know if that reservoir continues or not.

Q This is the second isopach you've prepared for the South Shoe Bar, isn't that correct?

A That's correct.

Q What studies, additional studies have you done since the isopach you prepared for the July hearing to create the contours that you show on your Exhibit Number Three?

A Well, you've had two additional wells drilled in there and that's the reason that the isopach has changed.

The only other thing would be that the ARCO well at the time the first isopach was prepared, the ARCO well was still testing and that was based on my personal communication with ARCO and at that time they had some indications of gas production in their well.

Q Ms. Lane, what did you use to draw the location of the Mobil well on your Exhibit Number Three?

A I don't know if that's a proper location or not. I know it's in the southeast and I just drew it in

the center.

Q Do you know what unit letter that well is in?

A No, I don't.

Q If in fact it is in Unit letter I would you correctly place the well on your exhibit?

A Can you give me a description of the Unit I?

Q Sure. It would the northeast of the southeast.

A No, that wouldn't be correct; then my location wouldn't be correct.

Q Your location would not be correct?

If your location is not correct, is the dip in your 10-foot line going to change?

A The dip probably would not change since I don't actually have any number on the Mobil well. It probably would not change at this time.

If I had the Mobil well and knew the exact number of feet of net pay then it might change.

Q So the location of the Mobil well is not important in your conclusion that the 10-foot line dips that way --

A The only thing, the only reason that 10-foot line is shown there is I know they have some net pay

and it's a basic geologic interpretation. Anyone could draw it. You could draw it a number of different ways.

Q And they would all be valid with your information?

A Yes.

Q What stimulation has been performed on the Sun well since it went on line in August or September?

A I don't know that we've -- we haven't stimulated the well.

Q Why is that?

A The method of completion that we use is a natural completion and I'm really not qualified to testify to it.

Q Is that something that your next witness will be able to testify to?

A It's more in line of a production engineer's job and we don't have a production engineer here.

Q What's Sun's acreage position in the north half of Section --

A We don't have any acreage.

Q Who's buying the gas from your well?

A I don't know. I believe it's Pinnacle (sic). I'm not 100 percent sure.

Q You were with Sun in 1987, were you not?

A Yes.

Q Were you aware of why it took so many months for Sun to start producing that well?

A No. That's really a gas marketing function.

Q Do you know whether or not the well was being physically choked back at this time?

A I don't know.

Q That's all I have. Thank you.

MR. LEMAY: Thank you, Ms. Aubrey.

Additional questions of the witness? Mr. Losee.

CROSS EXAMINATION

BY MR. LOSEE:

Q Ms. Lane, did I understand you correctly to say that you had determined that the wells were declining more than 10 percent (unclear) based on the production rates of the wells?

A That's -- that's testimony that will be presented by our reservoir engineer and that's just through my communication with him that my understanding is that there a greater than 10 percent, but I'm really not qualified to determine decline rates.

Q That's all.

MS. TALLMADGE: I have a couple of questions.

MR. LEMAY: Ms. Tallmadge.

CROSS EXAMINATION

BY MS. TALLMADGE:

Q Ms. Lane, you testified that Sun's proposal to limit production by a formula which relates deliverability to acreage in these nonstandard units, would protect correlative rights.

That proposal would limit production regardless of a well's deliverability, is that correct?

In other words --

A I guess I don't understand what you're asking.

Q In other words, all wells that are located in any nonstandard spacing or proration unit in this pool would be restricted.

A They'll be restricted by, yes, the penalty assessed against deliverability.

Q So a well which is just economic to produce would be restricted and could be abandoned by virtue of the fact that restriction might get that well (not understood.)

A Yes.

Q All right. That's all I have.

MR. LEMAY: Mr. Garcia?

MR. GARCIA: No questions.

MR. LEMAY: Additional questions? Commissioner Brostuen.

QUESTIONS BY MR. BROSTUEN:

Q The only question I have was asked earlier, but for some clarification, on your contour line on the net pay isopach, are you saying that there is no -- there is are no well data available for the contour lines in the north half of Section 15?

A Yes, that's correct.

Q Or into the south half of Section 22?

A Yes, that's correct.

Q Thank you.

QUESTIONS BY MR. LEMAY:

Q One question, Ms. Lane. You -- you didn't have any structural information. Does structure play any part in this accumulation at all?

A This is a stratigraphic play and there is -- that's the reason I didn't put on a structural map. It really does not relate to what we're -- to the reservoir.

Q As far as you know there's no water

being produced in this Atoka (unclear)?

A No.

Q Thank you.

MR. LEMAY: Additional questions?

If not, the witness may be excused.

You may call your next witness, Mr. Carr.

MR. CARR: At this time I will call Mr. Cielinski.

GREG CIELINSKI,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A Gregory B. Cielinski, Midland, Texas.

Q Would you spell Cielinski, please?

A C-I-E-L-I-N-S-K-I.

Q Mr. Cielinski, by whom are you employed and in what capacity?

A I'm employed by Sun Exploration and Production Company as an engineer.

Q Have you previously testified before this Commission?

A Yes, I have.

Q At that time were your credentials as a petroleum engineer accepted and made a matter of record?

A Yes, they were.

Q Are you familiar with the application field by Sun in this case?

A Yes, I am.

Q Have you studied the area?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. LEMAY: They're acceptable.

Q Mr. Cielinski, did you testify for Sun in the 1988 hearing?

A Yes, I did.

Q Was reservoir drainage an issue in that proceeding?

A Yes, it was. In fact in the order that resulted from that hearing it was stated in Finding Number 7 that all parties agreed that wells completed in this pool

would drain in excess of 320 acres.

MR. CARR: May it please the Commission, since we are focusing only on a portion of that prior order and since we do not intend to go back in relation to those questions, we would request that the record of July 14, 1988, hearing be incorporated by reference in this hearing.

MR. LEMAY: Without objection the record in that hearing will be incorporated in the record of this hearing.

Q Mr. Cielinski, would you please refer to what has been marked as Sun Exhibit Number Six, identify that and review it, please?

A Okay, Exhibit Number Six is a pressure history of the South Shoe Bar Atoka Field.

The first column on the left is a date and the next column is a well name.

The next column after that is a cumulative gas in MMCF of that well at that date.

The next column is the cumulative gas in MMCF for the reservoir at that date.

The next column is static bottom hole pressure at that date.

And the final column is shut-in tubing pressure at that date.

The first date in 1953 it shows McIlvain's well was originally drilled and DST'd in the Atoka Field, showing a static bottom hole pressure of 6400 psi. That well was not completed in that zone, however.

And in November of '84 HNG, who is now Enron, drilled and completed the Shoe Bar 14 State Com No. 1. That well had cumed zero, so the reservoir had cumed zero at that time and pressure had fallen to about 5800 psi, indicating some form of drainage outside of what is currently the South Shoe Bar Atoka Field.

Then in January of 1986 the McIlvain well was re-entered and completed in the Atoka and the reservoir had cumed 132 MMCF from Enron's well and pressure had fallen to 337 psi, indicating some form of drainage and pressure communication.

In December of '87 Sun completed the Shoe Bar State Com Well No. 1. Their well had not cumed any gas at that time. The reservoir had cumed 3.6 BCF and pressure had fallen an additional 25 to 90 psi, all the way down to 2879 psi, indicating severe drainage primarily from the McIlvain well.

At this time the shut-in tubing pressure on that well was about 2100 psi.

In February of '88 Sun's well had an additional pressure even though it had not produced at all.

The shut-in tubing pressure of 1923 psi was reported, indicating 174 psi drop in about 2-1/2 months time despite the fact that they do not have any production.

And then in April of '88 there was additional bottom hole pressure. Still Sun's well had not produced as of April 4th. The cumulative gas in the reservoir was up to about 4.32 BCF primarily from McElvain's well and the pressure had fallen in about four months time by 315 psi.

This indicates that McElvain's well was draining Sun's well and there is pressure communication across these -- between these wells.

Q And those are the conclusions you can draw form this pressure information?

A Yes.

Q Now let's go to Exhibit Number Seven and I'd ask you to identify that, please.

A Okay. This exhibit is a bar graph showing original gas in place as calculated from Shelley Lane's net pay volumetrically and versus cumulative gas produced for three of the wells in this pool.

The first well is McElvain's well and it shows here that the original gas in place was about 4.6 BCF yet their production, cumulative production to date, through November, '88, I believe, is a little over 5 BCF.

This indicates that McElvain has that opportunity to produce their fair share of reserves under (unclear) tract.

The next well shown there is Sun's well. Sun has over 9 BCF gas in place yet they've only produced about 378 MMCF through November.

And the final well is the marginal well, Enron's well.

And that's all.

Q Mr. Cielinski, you're not here for Sun advocating that you are going to be able to produce the reserves that were originally under that tract, are you?

A No.

Q All you're trying to do is adjust the equities from this date forward, is --

A That's true.

Q -- that correct? All right, let's go to Exhibit Number Eight and I'd ask you to identify that first of all.

A Exhibit Number Eight is a pressure history in tabular form and graphical form of three of the wells in the South Shoe Bar Atoka Field.

Q Okay, explain exactly what this first page shows.

A Okay. This shows the pressure history for Enron's Well, McElvain -- I'm sorry, production his-

tory for Enron's well, McElvain's well, and Sun's well, and these figures are in MMCF per month.

The thing to note on this is that in 1988 McElvain's well began to show some severe decline prior to the effective date of the order resulting from the last hearing.

Q In your opinion does the order that was entered last September and the penalty contained therein in any way effect or (not clearly understood) the McElvain well?

A No, it does not. The limiting production value from that hearing was 135,000 MCF and that went into effect, I believe, in September of '88.

The well was already down below that in July of '88 and has continued to decline significantly below that value.

Q All right, let's go to the next pages and let's take a look at the graphs.

First explain to the Commission what these graphs indicate.

A Okay. The first graph is the graph of McElvain's production. The top line is gas production in MCF per day and the bottom line is oil production or condensate.

The significant thing on this graph is

it shows in 1987 the well was making close to 6-million a day for several months but in 1988 it has declined severely, on the order of about 50 percent and is now down to just over 3-million a day.

The remaining graphs here are additional wells in the total field, South Shoe Bar.

Q In your opinion is the South Shoe Bar Atoka Gas Pool declining at a rate in excess of 10 percent per year?

A On a per well basis, yes.

Q Now, would you just summarize to the Commission what Sun is seeking with the application in this matter.

A Okay. Sun is seeking that instead of the arbitrary 6-million a day deliverability chosen in the last order, that semi-annual deliverability tests be required by each operator, or more frequently if any individual operator were to request that.

Q And that would be because of changes in the reservoir?

A Yes.

Q And then what do you do with this semi-annual or more frequent deliverability figure?

A Sun recommends that it be applied towards acreage as it was in the last order. For example, I

think if the operator had less than the standard 320 acres their -- their deliverability should be multiplied by that fraction. For example, McElvain's well has had 240 acres or 75 percent of the standard 320 acres; therefore their deliverability should be multiplied by the 75 percent.

Q And does Sun have any recommendations as to how these deliverability tests should in fact be conducted?

A Yes, they should be conducted under standard operating conditions and the normal tubing -- normal tubing pressure for that well would be vented to the atmosphere. Also at a statewide producing rate the well is not -- the well should not be shut in immediately prior to the deliverability test and they should be witnessed by the Oil and Gas Conservation Division and by any operator, if any operator so desires.

Q If in fact this recommendation is adopted by the Commission, what will be the consequences of that amendment to this order?

A Correlative rights will be protected and will no longer be -- rates will no longer be controlled on an arbitrary number but rather on a meaningful number based on deliverability.

Q And that meaningful number will be actual well performance?

A Yes.

Q Were Exhibits Six through Eight prepared by you or prepared under your direction and supervision?

A Yes, they were.

Q And can you testify as to the accuracy of these exhibits?

A Yes, I can.

MR. CARR: At this time, may it please the Commission, we'd move the admission of Sun's Exhibits Six through Eight.

MR. LEMAY: Without objection Exhibits Six through Eight will be admitted into the record.

MR. CARR: That concludes my direct examination of Mr. Cielinski.

MR. LEMAY: Thank you, Mr. Carr.

Ms. Aubrey?

MS. AUBREY: Thank you, Mr. Lemay.

CROSS EXAMINATION

BY MS. AUBREY:

Q Mr. Cielinski, you testified that the last Commission order was based on an arbitrary assignment

of production, is that correct?

A Well, arbitrary meaning it was 6-million a day, which they stated was a maximum rate at one time. In today's standards it really is arbitrary.

Q Isn't that exactly what the McElvain well was making at the time of the last hearing?

A It was making that in 1987. I don't believe it was at the actual date of the hearing, no.

Q Was your well producing as of the date of the last hearing?

A Yes, it was.

Q When did your well go on line?

A First production actually shown on the well was in April of 1988.

Q You show that on your Exhibit Number --

A Number Eight, yes.

Q -- Number Eight, is that right?

A Yes.

Q And then you have zero for May of 1988.

A That's correct. It did not --

Q Why is that?

A It didn't produce full rate during that time due to the marketing problems (not clearly understood.)

Q There were no mechanical problems with

the well?

A I do not remember.

Q Do you know why the well was not put on line until April by your calculation?

A As I understand it, it was a gas marketing issue (not clearly understood).

Q Do you have an opinion as to the amount of reserves that were lost from Sun's acreage from the time that the well was completed in December until it went on line in April?

A There were reserves lost. I cannot quantify them, no.

Q Have you calculated any sort of pressure decline for the reservoir during that time period?

A No, I have not. Well, there is -- there is -- on Exhibit Number Six there is a pressure decline for each well shown on that exhibit.

Q You don't have the Phillips well on any of these exhibits, do you?

A No, the Phillips well, you know, as far as Exhibit Number Six, was not in existence (unclear).

Q And you don't have any production information at all?

A My production information came from Dwight's which went through November of '88. I understand

that that well was not completed at that time.

Q Do you know whether or not Sun was concerned during this period from December to April that there was in fact a decline in pressure in their reservoir at a time when this well completed but not producing?

A Some -- some members of Sun were concerned about it, yes.

Q And what concern was that?

A That our reserves were being drained.

Q And what did you do about it?

A At the time I wasn't working there so I didn't do anything about it.

Q You were not working --

A I wasn't working in that area, I'm sorry.

Q You were working for Sun, though.

A Yes, but not in that area.

Q Did you have any conversations with people who were working in that area about what Sun was going to do to protect its reserves?

A Not at that time, no.

Q And what do you attribute the decline in pressure to during the time period December of '87 and April of '88?

A Depletion of reserves, primarily from

McElvain's well.

Q In your opinion was -- when the Sun well began to produce was the Sun well draining reserves from the McElvain acreage?

A I'm sorry, could you repeat that?

Q I believe, let me back up. I believe you testified at the last hearing, Mr. Cielinski, that the McElvain well was draining Sun's acreage. Do you remember that testimony?

A Yes.

Q Is it your opinion that once the Sun well began to produce, that it was also draining the McElvain acreage?

A No, I don't believe so due to pressure differences.

Q Would you explain that for me, how in engineering you come to the conclusion that drainage (not understood.)

A Well, I wouldn't say that unequivocally. I mean, the majority of the drainage had occurred by the time Sun's well was draining -- or, I'm sorry, during the time that Sun's well was not on line, and the majority of the pressure depletion occurred as shown on Exhibit Number Six. The initial pressure there on McElvain's well was, at the time they re-entered into that, you know, the Atoka

zones about 5500 psi. By the time Sun's well came on line in approximately April, the pressure had fallen to about 3000 psi. So the majority of depletion effects occurred had occurred about that time period.

Q And do I read this correctly that according to your Exhibit Six the pressure dropped about 300 pounds from December, when your well was drilled, to April, when it began to produce?

A That's correct.

Q So your testimony is that the McElvain well had drained the Sun acreage prior to Sun's drilling.

A Yes, that's part of my testimony.

Q When did Sun acquire its interest in Section 15?

A I'm not qualified to answer that.

Q Do you know whether it would have been before 1985?

A I don't know for sure.

Q Were you involved in the decision to drill this well?

A No, I was not.

Q Does Sun have any witness here today who was involved in the decision to drill this well?

A I'm not sure. Shelley Lane may have been but I'm not sure.

Q Have you done a pressure build-up test on your well?

A I believe one was done in April that is shown here, in April, 1988.

Q Do you agree with your geologist that there are 26 feet of net pay in the Sun well?

A I agree with her testimony but I'm not really qualified to pick net pay zones.

Q Do you have an engineering explanation for the difference in performance between the McElvain well and the Sun well?

A There are several explanations. The McElvain well originally came on at 6-million a day and that was primarily due to a higher pressure at that time.

The current rate is slightly higher than McElvain's well and that's probably primarily due to the fact that their well's on a compressor and ours is not. There's not a big difference in productivity right now.

Q I believe the data that Ms. Lane gave us was from November of 1988, is that right?

A The production data?

Q The production data.

A Yes, I believe so.

Q 3.2 for the McElvain well and 2.8 for the Sun well?

A It's on my -- on both of my curves. I attached a table here in my production curves and yes, that looks about right.

Q Do you know whether or not the McElvain well was on a compressor in November?

A I don't know.

Q The -- what is the pressure now in your opinion?

A I do not -- I don't know that.

Q Do you have an opinion as to whether or not the reservoir pressure is dropping at the same rate that we can deduce from your Exhibit Number Seven?

A I would tend to say that it's probably not dropping at that rate due to reservoirs normally drop at a faster rate earlier in their lives.

Q And Sun came into this reservoir after about three years, is that correct?

A That, yeah, that appears correct.

Q If we use the formula that Sun has set forth in its application, what production will the Phillips well be allowed?

A I don't know what their deliverability test will indicate.

Q So you don't have any idea what it is, how much the penalty against the Phillips well will be?

A The penalty, I believe, if Phillips has 160 acres, the penalty will be 50 percent of their deliverability, whatever their deliverability may indicate at the time the test is done.

Q And what will the penalty against the McElvain well be?

A 75 percent of their deliverability.

Q And what will that be in numbers?

A I don't know what their deliverability would be. Apparently it will be below 3.2-million a day if the wells continue to decline in the area.

Q And what about the Mobil well?

A I don't know anything at all about the Mobil well's producing ability. I think they have 240 acres so that penalty would be 75 percent of the deliverability.

Q What is the -- what affirmative action is Sun going to take to increase the production from its well?

A There will be none that I know of. You know, I'm not a production engineer on that. It's not my area, so they -- there's a possibility they may be -- they may put on a compressor but I'm really familiar with what they're going to do.

Q Do you know whether or not there's been any attempt now to acidize the well?

A No, I don't.

Q Do you have an opinion as an engineer whether or not acidizing the well would increase the production?

A I have studied this particular reservoir from the production/completion standpoint so I couldn't answer that.

Q I'm going to give you a copy of Ms. Lane's Exhibit Number Three and I'll give you a red pen and I'd like you to draw the drainage radius for me. Can you do that?

A No, I can't. I have not calculated recent drainage volumes on those logs.

Q So you cannot calculate the drainage radius from the Sun well.

A Not right here, I can't. If I go back to my office and look (unclear) I could.

Q I don't -- I want to be sure that we understand each other. What I would like you to do is depict it with a drawing if you can do that.

A I can not.

Q Do you have an opinion as an engineer, Mr. Cielinski, as to whether or not knowing what that

drainage radius is or being able to calculate it would be critical to this Commission in deciding whether or not to impose a penalty on the producing well?

A Would you rephrase that, please?

Q Sure. Do you have an opinion, Mr. Cielinski, as an engineer whether or not your ability to calculate a drainage radius for the Sun well would be of assistance to the Commission in deciding whether or not to grant your application?

A I don't believe that my ability to do that is that critical to this testimony.

Q Is there going to be another witness here today who will testify to the drainage radius of the wells?

A No, there's not.

Q As an engineer can you explain to the Commission why it is that your well IP'd at around 9-million as testified earlier and now it's producing 2.8?

A That was not -- well, it was calculated open flow and it's my experience that open flows in New Mexico are normally about 3 times as high as the well will actually produce.

Q Who's buying the gas from this well?

A I'm not sure. I believe it's Pinnacle, but I'm not sure.

Q Do you know whether or not you have more than one purchaser for gas from this well?

A I have no idea. I don't know.

Q Mr. Cielinski, do you believe as an engineer that the Phillips well should be penalized to an extent that will prevent it from lifting the liquids in its wellbore?

A Nc, I don't believe that.

Q Sc if -- if Phillips were able to show what minimum flow was required to lift liquids in the wellbore, would Sun have any problem with setting the penalty above that limit?

A Well, if the number was unrealistically high and it was violating Sun's correlative rights, then maybe that they would have; that would be a problem about that.

Q Well, if --

A I'm not familiar with what their lifting problem is in the well, to what extent we would be affected on it.

Q But you would agree that it would be reasonable to set the penalty at a figure which will allow Sun to produce sufficiently to lift the liquids in the well.

A To allow Phillips, you mean?

A Phillips, I'm sorry.

A It depends on the magnitude of the numbers involved, I think, because if it was a high enough rate it would violate correlative rights.

Q What would that rate be?

A I haven't calculated it. I didn't calculate it; it's a practical number, I'd say.

Q Well, you've objected to 3-million a day for Phillips, haven't you?

A I haven't said anything about 3-million a day.

Q Sun has filed an application to reduce Phillips' (unclear) 3-million a day.

A Their -- their rate would be based on 50 percent of their deliverability. I'm not aware of what their deliverability is.

Q Presently they're not allowed to produce more than 3-million a day, is that right?

A That's correct.

Q And is it Sun's position that production from the Phillips well should be less than that?

A If their deliverability is less, is low enough such that it would fall below that number, yes.

Q Now you said that in April you believe that you ran a pressure build-up test, is that right?

A I believe so, yes.

Q Do you know whether (unclear) was calculated when that test was run?

A I'm not -- I'm not sure if it was or not. A lot of build-up tests, the data is not analyzed well enough to calculate (unclear) factors. I'm not sure in this particular one whether it was or not.

Q Do you have any records from that test with you?

A No, I do not.

Q Did you run the test?

A No, I didn't.

Q Did you review it?

A Yes, I did.

MS. AUBREY: That's all I have, Mr. Lemay.

MR. LEMAY: Thank you, Ms. Aubrey.

Mr. Garcia, any questions?

MR. GARCIA: No questions.

MR. LEMAY: Mr. Losee?

MR. LOSEE: Yes, a few.

CROSS EXAMINATION

BY MR. LOSEE:

Q Mr. Cielinski, turning to your Exhibit Number Six, I notice that between 1953 when the bottom hole pressure was taken in the New Mexico State AC -- AC State No. 1 Well by Humble (not clearly understood) it was 6400. And when the first well in the South Shoe Bar Field came in 30 years later it had declined to 5800. Could you explain the reason for the decline?

A My best guess at that would be that over the 30 year period there had been a little bit of pressure depletion from the Northeast Vacuum Field.

Q Is that the same reservoir as the South Shoe Bar Atoka Field?

A It is not considered the same pool but it is my feeling that they probably are in pressure communication.

Q Well, would you say that some of the decline in pressure in that 30 year period came from the North Vacuum Atoka Morrow Pool?

A A minor amount, a minor amount of depletion over a 30 year period, yes.

Q And then 4 years later the pressure had declined 350 pounds and only 132,000 MCF of gas had been produced from the Shoe Bar 14 Well.

A Well, 2 years later, I believe, or early -- about a little over a year later.

Q Would that indicate drainage is still coming from the North Vacuum Atoka Morrow Field?

A No, I would say that the magnitude of the numbers in the proximity of the wells, I'd say that most of that drainage was coming from Enron's well.

Q In other words, the 132,000 caused a decline of 350 pounds?

A For the most part, yes.

Q But you do feel like that the reservoirs are in communication one with the other, or in the same reservoir?

A That's my opinion, yes.

Q What is the basis for your testimony that at the time or just prior to the hearing last summer the McElvain well would not make 6-million cubic feet?

A Strictly off the production -- production data shown, as shown in Exhibit Number Eight.

Q In January of that year your exhibit showed it made 5900 MCF, did it not? 5.9-million?

A It made 177,476 MCF (unclear) --

Q 5.9-million, approximately?

A Yes, that sounds about right.

Q And in March it made 5.6-million?

A That sounds about right. It made 166,815 MCF in March of '88.

Q Now, if it were not on line all during the month, the actual rate of production would be greater, would it not?

A Probably so, yes.

Q Do you know how many days per month the McElvain well was on during 1988?

A No, I do not.

Q And so that if the number of days the well was on were less than 30, your calculation as to the deliverability of a well are incorrect --

A I haven't calculated deliverability. All I said was the maximum rate that it showed on a monthly basis since produced is at about (unclear) --

Q And that doesn't say that it wouldn't produce 6-million if it were on the line 30 days a month, does it?

A (Not understood).

Q Would the same thing be true of the Sun well?

A Yes, it would.

Q Your calculations are solely on production?

You said your well went on line in May

of 1988.

A In April, I believe.

Q April.

A Was the first production.

Q You show -- I think Commission records will show whether my statement I'm getting ready to ask you is correct or not, but our information is that in March of 1988 the Sun well produced 173,939,000, and you show zero. and that in May of 1988 when your records show zero, Commission records reflect 168,980,000, and I'd ask the Commission to take administrative notice of their own records.

A The data that I have came from Dwight's Energy Service, and it's my understanding they get it from the Commission, so to the best of my knowledge that's correct, and I haven't checked it with the records.

Q Well, if it was 173-billion that you were thinking you made in March, isn't that pretty close to 6-million a day?

A Yes, but I don't believe we made that many.

Q You don't think the reports you filed with the Commission are incorrect, do you?

A I'm not familiar with reports that we filed with the Commission.

Q Do you know whether or not Sun's well

was on the line during the entire month of June, 1988, when you show 61,000 --

A I don't know for sure but I believe it was during June or July.

Q All 30 days?

A I believe it was not producing all 30 days, that's correct.

Q Well, do you have any month in your production figures which you believe the well was on line for all 30 days?

A There aren't any months that I can testify for sure that the well was on all 30 days.

Q So that clearly with respect to Sun's well these production figures have no relation to the ability of your well to produce.

A From the production numbers you can infer close to deliverability, but I'm not suggesting that we use production numbers for deliverability.

All I'm suggesting is that from McElvain's decline curves that my best judgment would be that it is no longer capable of delivering 6-million a day, but I don't know for sure (not clearly understood.)

Q Well, clearly if in November of 1988, and I'm not saying it was or wasn't, you show 95,000. If it was only on line for 15 days in the month, how would you

say it's not capable of making 6-million?

A All I'm saying is my judgment is in 1988 their average monthly production fell from almost 6-million a day to a little over 3-million a day. That's got to be due to depletion or I guess it's possible that each month (unclear) produces exceedingly less -- fewer days, but that -- that doesn't seem reasonable. It seems much more reasonable that it's due to depletion.

Q Okay, Mr. Cielinski, do you have the production reports for December of 1988?

A No, I do not.

Q I think the Commission records will reflect that the McElvain well during December of 1988 made 117,257,000 MCF, an increase over the preceding month of 22,000 (inaudible) --

MR. LOSEE: I think that's all.

MR. LEMAY: Thank you, Mr. Losee.

Ms. Tallmadge?

MS. TALLMADGE: I have no questions.

MR. LEMAY: Additional questions of the witness?

I have a couple.

QUESTIONS BY MR. LEMAY:

Q Mr. Cielinski, do you have any average decline rate gas production for the Shoe Bar Atoka Pool?

A No, I haven't (not clearly understood).

Q How about average deliverability for the pool?

A To my knowledge there has not been any absolute deliverability tests on any wells, other than the absolute open flow tests upon completion.

Q Absent any deliverability tests do you have any recommendations as to the assessment of deliverability besides the semi-annual deliverability tests?

A It's Sun's opinion that semi-annual deliverability tests or more frequently if requested by the operator would be the best means to determine deliverability for each well in the field.

Q Absent that do you have any other suggestions?

A No, sir.

MR. LEMAY: That's all the questions I have.

You may be excused.

Let's take a 15-minute break and we'll come back. Am I assuming that that's all you

have, Mr. Carr?

MR. CARR: That's correct.

MR. LEMAY: We'll come back and hear Phillips.

(Thereupon a recess was taken.)

MR. LEMAY: We shall continue now with Phillips' case, Ms. Aubrey.

MS. AUBREY: Thank you, Mr. Lemay.

WILLIAM J. MUELLER,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MS. AUBREY:

Q Will you state your name, please?

A My name is Bill Mueller, Reservoir Engineering Supervisor with Phillips Petroleum Company.

Q Mr. Mueller, have you testified previously before the New Mexico Oil Conservation Commission?

A Yes, ma'am, I have.

Q And have your qualifications been made a

matter of record?

A Yes, they have.

MS. AUBREY: Mr. Lemay, are the witness' qualifications acceptable?

MR. LEMAY; They're acceptable.

Q Mr. Mueller, would you give us a brief summary of the Phillips opposition to Sun's application?

A Phillips stands in opposition to the current Sun application because this hearing was held essentially July 14th of last year at which time Phillips sought approval of 160-acre nonstandard unit. We were granted that approval and subsequently we drilled our well based on that Commission approval.

The limitation placed upon that well, although Sun says the 6-million was arbitrary, that's really not true because the McElvain well for all of 1987 produced at a rate of about 6-million a day and that was, I'm sure the Commission thought was a good representative producing rate for a good well in that field.

Also at that time they had the Sun calculated open flow, which was right at 10-million a day is what Sun calculated open flow was in their well. The calculated open flows in the State of New Mexico are based on wellhead deliverability, not like in Texas with a (un-

clear). So calculated open flows in New Mexico should be representative of what a well is capable of doing.

And I think what Sun asks now, where we take the 15 percent penalty based on our actual deliverability could severely penalize wells in this depleting reservoir to where they're no longer capable to lift fluids from the hole, and it would go through a series of being dead and then have to be swabbed, tubing run, or something, to keep the liquid out.

Q Mr. Mueller, let me have you turn to your Exhibit One. You already have.

A Exhibit One shows the wells and the current proration units in the South Shoe Bar Field. This shows the Sun well in the south half of 15, located in Unit N, having a 320-acre proration unit.

It shows the McElvain well located in Unit H of Section 22 having a 240-acre proration unit, and under current New Mexico Commission directive it is penalized to a maximum producing rate of 4.5-million.

It shows the Phillips well located in Unit V of Section 22. It has 160-acres assigned to it and it is limited to a maximum producing rate of 3-million by the Commission order that approved its nonstandard unit.

And we show the Mobil well located in Unit I of the south half of Section 22, and this is the

location we picked up from the scout ticket as being 1980 from the south and 660 from the east. It's not -- the well is not located in the center of the southeast quarter.

Q Do you believe that your Exhibit One more accurately depicts the location of the Mobil well than Sun's Exhibit Six?

A Yes.

Q Also on Exhibit One you have two proration units outlined in yellow. What are those?

A Okay, the one, the Enron well in Section 14, the yellow line is not (unclear) because the Enron well has 320 acres assigned to it, being the west half of Section 15.

The other proration unit here is the C. W. Trainer Betty State No. 2, and it has a total 320-acre unit because it also owns the northeast quarter of 16.

So the only nonstandard units in this field are the three units in Section 22, and they all have a certain penalty against the (unclear).

Q Let me have you look at Exhibit Number Two, now, Mr. Mueller.

A Exhibit Number Two shows the gas production from the wells in the South Shoe Bar Atoka Field for the year 1988. This was taken from New Mexico Oil and Gas Engineering Committee data.

It shows the total annual production of the Enron well to be 70-million; the total annual production of the McElvain well to be 1.6-billion. It shows the Sun Shoe Bar Well to have produced 454-million during the year 1988.

Although the Phillips well is listed here, it did not complete until December the 30th of 1987 with a calculated open flow of 546 MCF a day.

And in January of 1989, it's not shown here because the records just hit my office Friday afternoon, but in January of '89 the Enron well produced 6-million for a daily rate of 197 MCF a day.

The McElvain well produced 117-million for a daily rate of 3.8-million a day.

The Sun well produced 80-million point 7 for a daily rate of 2.6-million a day.

The Phillips well did not come on production until February and in the month of February we produced 19 days and produced 1925 MCF for a daily rate of 101 MCF a day.

Q Let me have you look now at Exhibit Number Three.

A Exhibit Three is a production history of the Enron well showing in red the MCF per day; in green the barrels of oil per day; and then blue stars are the shut-in

tubing pressure for the various years since 1974 that was reported to the New Mexico Oil and Gas Engineering Committee, and that scale reads linearly (sic) over on the right-hand side, such that it shows that the Enron well back in '74 had a shut-in tubing pressure of approximately 3500 and has declined now to 1987 where the shut-in tubing pressure is right at 3000.

The well has been relatively poor, producing only at a rate of about 200 MCF a day for the last several years.

Q Let me have you look at Exhibit Number Four now.

A Exhibit Number Four is a production graph of the McElvain well. The same color connotation, red being the MCF per day; green being the barrels of oil per day. The purple stars here indicate the shut-in tubing pressure that was reported by the McElvain well in 19 -- late 1986 as being somewhere around 2750; in the middle part of 1987 shut-in tubing pressure was like 17 -- excuse me, probably 2000 daily; and the shut-in tubing pressure in 1988 had declined to where is was like 1500 pounds.

Of not here is the increase in decline rate of the McElvain well starting in like June of 1988. Like, for instance, this happens to be the same month that the Sun well came on production, so this definitely shows

the excellent communication in this reservoir because as soon as Sun started producing the McElvain well increased its decline rate substantially.

Q Dc you then conclude from this exhibit that the decline in the pressure in the McElvain well was due to the Sun well coming on line?

A Decline curve (unclear), yes.

Q Let me have you look now at Exhibit Number Five.

A Exhibit Number Five is the monthly production plot for the Sun well. Here again the gas is in red, the oil's portrayed in green. The shut-in tubing pressure is shown in yellow stars here. It shows that the well initially completed in December of '87; had a shut-in tubing pressure of, I believe, a little over 2000 pounds; that the well came on production, major production, in June of '88 and shut-in tubing pressure recorded one month later in July had dropped all the way to 1700, so it essentially lost 400 pounds of shut-in tubing pressure in the 6 months they were shut-in.

In the 6 months that they were shut-in with a well that had a calculated open flow of 10-million, and I think the highest flow rate on their 4-point back pressure test was 4-million a day at 1600 pounds tubing pressure. So they essentially lost almost 3/4 of a billion

cubic feet of gas, and I'd say that well was capable of producing 4-million a day during the 6 months they were shut-in.

Q Let me have you look at Exhibit Number Six now.

A Exhibit Number Six just shows the cumulative production in MCF for each of the same wells that we just saw a graph to.

You will see at the bottom this shows the Phillips State 22 No. 1. We IP'd the well in December of '88 and had initial shut-in tubing pressure of 1318.

In January, 2 months later, when we went on stream we had recorded shut-in tubing pressure of 1226.

As of last week we were shut-in over night and had a shut-in tubing pressure of 1125.

The bottom hole pressure -- excuse me, shut-in tubing pressure had declined about 200 pounds in the Phillips well in essentially the last 4 months and we have produced very little gas from our well because we are not capable of sustaining a high enough flow rate to lift liquids. The well has constantly died on us.

We moved a (unclear) tubing unit in in March, blew the well dry. It was making 450 MCF a day initially and within one week it again loaded up and was zero.

So now the well sits with about 600

pound shut-in tubing pressure against the line and will not produce gas.

We stimulated the well Friday with 2000 gallons of acid and right now we still lack 19 barrels of liquid back but the well this morning is only flowing 450 MCF a day against a 700 pound tubing pressure, so at that rate we probably are going to load up and die again.

Q To what do you attribute the decline in pressure from December, 1988, when your well was completed, and the present time?

A Production by both Sun and McElvain, primarily Sun, since they're the closest.

Q How far is the Sun well away from the Phillips well?

A It's about a 40-acre diagonal offset.

Q How far is the McElvain well away from the Phillips well?

A It's across the section, probably 3000 feet.

Q Do you have an opinion as to whether or not Sun is presently draining reserves from the Phillips acreage?

A I would think they would be, yes. Their drainage radius would extend into our acreage, as it does into the McElvain acreage.

Q Let me have you look now at Exhibit Number Seven.

A Exhibit Number Seven is just a graph of all the shut-in tubing pressure for the wells in the South Shoe Bar Field and it shows here the excellent communication of all the wells.

The green well, the green line here, which starts back in 1984, was the Enron well.

Next, in 1986 McElvain comes in with the orange well and he comes in right where Enron is ready to decline to.

Then in 1987 Sun, which is the yellow well, comes in with a shut-in tubing pressure right where McElvain and Enron have declined down to.

And then the two little red X'es are the Phillips well, which was completed in late '88, and you can see it's all right on strike. We all have been depleted down to like 1200 pounds shut-in tubing pressure.

Q Let me have you look now at Exhibit Number Eight.

A Okay. Exhibit Number Eight is a very busy exhibit. This exhibit is a monograph taken from the SPE by (not clearly understood), November, 1969. It is based on some actual gas well data by Turner, Hubbard, Duffer (sic) and the article is titled Analysis of

Prediction of Minimum Flow Rates for the Continuous Removal of Liquids from Gas Wells.

Although we have sophisticated computer programs that will calculate this for you, this little monograph has proved to be highly accurate and if I could walk you through this, if you'll please look at the lower lefthand corner, you'll see pressure in pounds per square inch, and at 600 pounds well peak pressure, which is the constant wellhead pressure for our State 22 No. 1, if you were to rise vertically up to condensate on it, then go horizontally to the scale on the righthand side of the first graph, you'll see that the minimum velocity needed to lift condensate here is about 7 feet per second.

You then go through pseudo reduced pressure and temperature in the next line, over to a (unclear) line in the middle, come back down following -- this is the -- following the little dashed line. You then come through our tubing size is 2-1/2 and you'll end up with, on the righthand side of the -- my graph, you end up with a Q equal to 742 standard cubic feet per day, or 742 MCF per day needed for the continual removal of condensate from this well.

If I could walk you through the same procedure going now with the faint solid line, we now rise to what -- water, being the power of specific gravity,

almost 10 feet per second needed to lift gas.

And you go again to our 2-1/2 inch tubing and you see we need a minimum flow rate of at least 1-million a day if we were lifting 100 percent water.

So I think this shows that the wells in this field have got to have -- not be restricted below a minimum flow rate of 1-million per day or they'll not be able to continuously remove liquids from the borehole.

Q Have the calculations shown on your Exhibit Eight been proved out by the performance of the wells involved?

A Yes. As I say here, the well at 400 MCF per day is not capable of lifting fluids and is normally dead in 3 or 4 days.

The only way -- the other substantiation we have is we own and operate the State 16-1, the North Vacuum Atoka Morrow, right offsetting the Trainer Betty State 2, and that well continuously flows at 1.4-million a day and brings all the liquid out.

So we definitely have it draining between 1.4 will keep the well clean and .4 won't.

Q Based on your calculations shown on Exhibit Eight, do you believe you need a minimum of a million in order to keep the well flowing?

A That's right.

Q Let me have you look at Exhibit Number Nine, now, Mr. Miller.

A Exhibit Number Nine is the Commission Order R-8734-A, which approved the Phillips location, and we think that the penalties imposed by the Commission order limiting Phillips' production to a maximum of 3-million and the McElvain well to 4.5-million are -- were sufficient at that time, that they were not based on arbitrary 6-million a day figure. That's what the good wells out there could make at that time.

Q Let me ask you some questions about the effect that this order had on Phillips' decision to drill the No. 22 Well.

That well was drilled after the Commission order was entered, is that correct?

A That is correct.

Q And in calculating the economics necessary to drill the well, did Phillips use the 3-million maximum set out in this order in order to decide whether or not this would be an economic well?

A That is right.

Q Have you calculated what the result of Sun's request would be on the Phillips No. 22's ability to produce?

A You can take our calculated open flow as

being indicative of the true (unclear) deliverability of 540-some and that would limit us to producing something like 270 a day, 270 MCF a day, and it would stretch our payout over 4 years.

Q Would Phillips have drilled the 22 Well if it had known that it would be limited to 270 MCF a day?

A No, ma'am.

Q Under the limitation of 3-million, have you calculated what your payout would be?

A I believe at that time it was a little over a year.

Q I'm sorry, I didn't hear you, Mr. Mueller. What do you calculate it to be if the Commission adopts the proposal made by Sun?

A We'll probably go to 2-1/2, but the cost of the well is almost 3/4 of a million, 743,000.

Oh, excuse me, under the proposal made by Sun?

Q Under the proposal made by Sun, between --

A Modified by the Phillips' 1-million a day minimum.

Q Well, let me ask -- back up and restate my question, sir.

Let's first of all assume a 1-million

production limitation.

A All right.

Q And what will that make your payout?

A It should be around 2 years.

Q Now, let's assume the Commission does --

A With no (unclear).

Q Assume the Commission does what? What Sun has asked it to do, which is to calculate the production based on deliverability and then cut that in half for the Phillips well. I believe you testified that that would be about 270 MCF a day?

A Yes, and that would stretch the payout to almost 4-1/2 years, I believe.

Q In Phillips' view does that make this well an economic well?

A No.

Q At 270 MCF a day does that provide Phillips with an acceptable rate of (unclear)?

A No, ma'am. And that's a non-declining 270 MCF. We know in the next four years this reservoir is going to drop substantially, so it's probably going to take more like 6 to 7 years to pay out.

Q Mr. Mueller, have you studied the information available on the Sun well, on its initial production and it's present producing rate?

A Yes, ma'am.

Q Do you have an opinion as to whether or not that well is presently producing to its capacity?

A Based on the calculated open flow potential they submitted to the Commission, I'd say it is not -- it cannot be producing to capacity. It should be a much better well than what it is.

Q Are you aware of any action that Sun can take in order to increase the production from that well?

A I think if I ran a pressure build-up analysis I'd sure calculate the skin to see if it needed any stimulation.

Q And if you discovered that it did, what would you do?

A I'd look at stimulating the well. If They stay competitive in this reservoir, they need to stimulate that well.

Q Have you heard anything today which would lead you to believe that it was not possible to stimulate that well?

A No, ma'am.

Q Do you know who's purchasing gas from Sun's well in Section 18?

A I understand Pinnacle, plus there's a second meter running installed recently and I don't know

the name. I would guess (not clearly understood).

Q You heard the testimony earlier, Mr. Mueller, by Sun's engineer, that a calculated open flow number would really -- really represent 3 times what the well's going to produce. Did I say that correctly?

A That's right. That's a normal rule of thumb used in Texas but I think New Mexico should be much closer to actually -- what it actually would produce, because it's (not clearly understood), you actually calculate it on pressure at the surface.

MS. AUBREY: Mr. Lemay, I have no more questions of Mr. Mueller.

MR. LEMAY: Mr. Garcia, do you have anything for the witness?

MR. GARCIA: I have no questions.

MR. LEMAY: Mr. Losee?

MR. LOSEE: Not at this time.

MR. LEMAY: Ms. Tallmadge?

MR. TALLMADGE: I have no questions.

MR. LEMAY: Mr. Carr.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Mueller, you were in attendance at the hearing in September of last year, when the orders which we're seeking to amend were actually under consideration and subsequently adopted, is that right?

A Yes, sir.

Q And at that time there was testimony concerning possible restrictions on production for units that were less than a standard 320, isn't that also right?

A That's true.

Q If I understand your testimony, you're stating that Phillips relied on those orders and you believe that the production limitation of 3-million on your well should remain.

A I think at the time the 3-million was imposed upon us we thought we were going to have a substantially better well. When we saw the 3-million a day we still had an economic well, so we proceeded to drill it.

Q And you're recommending that those penalities be the same?

A I'm essentially saying I don't see any reason to change it now we've developed the core and we need the minimum actual flow rates to lift the liquid out.

Q Now, the penalty of 3-million a day, is

that what it is, 3-million a day?

A It is for the Phillips well, yes; 4.5 for the McElvain well.

Q That penalty is based on maximum recorded flow rates off the McElvain well, isn't that correct?

A I think the Commission in selecting the 6-million a day believed that was -- probably picked that alternate in looking at the 10-million for the Sun well. They probably thought those were the only two wells (unclear).

Q And your well isn't anywhere near as good as those in (unclear).

A Nc.

Q And yet you think that penalty is more appropriate than one based on the actual performance of your own well.

A Yes, because my performance is so poor it makes my well uneconomical under the Sun proposal. I think Sun ought to just stimulate their well and give us (unclear).

Q Now, at that hearing Phillips did testify, did it not, the last September hearing, that penalties based on deliverability were appropriate?

A Were appropriate?

Q Yes.

A I don't believe so. I thought I said it was probably inappropriate. It was possible that a Phillips well could come in at 10-million a day, too, and then we would essentially have, you know, I could have a penalized allowable that would be higher than Sun --

Q And you're saying that Finding 15 in these orders, where it reads, "Under cross examination of the Phillips' reservoir engineer, it was suggested that penalty be assessed against deliverability."

Is that incorrect?

A It probably is because I asked that it be assessed by the pipe purchaser based on ratable take.

Q Do you think that deliverability is an inappropriate way to determine what a -- a penalty for a well on short proration unit?

A I think it can highly be inappropriate, yes, because deliverability can or cannot be indicative of reserves. As we see here, we have here a Sun well with 2.8-million deliverability but we find they've got (unclear) under the 320 acres, so deliverability is not a function of gas in place by their own testimony.

Q But deliverability would be a function of what the well is actually able to produce, however, would it not?

A Yes.

Q Now you talked about the calculated absolute open flows and stated that the 3-to-1 ratio that was testified to by Mr. Cielinski was inappropriate in New Mexico, is that right?

A Yes.

Q And you were stating that calculated absolute open flows in fact were more indicative in New Mexico because of the way we take (unclear), is that right?

A That's right.

Q Wasn't McElvain's calculated absolute open flow 56-million?

A I believe that's true.

Q And it actually produces 6?

A No, back initially I think it was capable of making a lot more than the 6 it's now making.

Q Do you know what it was? Was it able to make more than a third of that 56-million?

A I would say without too many restrictions, yes.

Q Would it --

A I think by our own -- I could reference our own well and state we had a calculated open flow of 546 and we're capable of delivering 450 MCF a day which is a 600 pound line pressure, so you can see we're almost

(unclear) deliverability here.

Q Now you have reviewed the producing capabilities of the Sun well, the McElvain well, your well, all the wells in the pool, isn't that correct?

A I've reviewed production data, yes, sir.

Q And based on this review have any of these wells in fact been restricted in their producing rates in any way because of the penalties that were assessed by the order entered last September?

A Not to my knowledge.

Q And the wells in Section 2 are on spacing and proration units that contain less than standard spacing and proration units, isn't that right?

A That's correct.

Q Now you indicated that if the Sun proposal was adopted and your producing rate stayed steady, that it would take you four years to pay out this well.

A If I'm limited to half my total production it would be.

Q And you're asking that you have a -- that that penalty not be imposed so that you may pay out in a shorter period of time.

A That's true.

Q Now, the rate of production on this well would have to stay constant to pay out in four years if the

penalty was imposed, isn't that right?

A That's right.

Q Have you considered putting compression on the well?

A Yes, sir, that's our next step, to see what the (not clearly understood) and go to compression.

Q And you might be able to increase the producing rate with that, isn't that correct?

A Yeah, probably not over 200 a day.

Q What have you been doing other than stimulating the well? You've acidized it, is that right?

A Yes.

Q That brought it from 101 to about 450.

A Right.

Q And then compression, have you estimated what that might do to it?

A I would think it would probably give you another 250 MCF a day.

Q And then that's going to shorten the pay out time, is it not?

A Yes.

Q Have you considered doing anything else, fracing the formation or anything of that nature?

A No, the acid job is all we've considered so far. We have the full results of that.

Q Do you have any other things you're considering that may do to the well to increase its producing capabilities?

A No, the compression is a quarter of a million dollars (unclear).

Q And if you were able to get the producing rate up to 750 by putting compression on, you could shorten the pay out to probably between a year and two years, couldn't you?

A That's right. Now that's the well; still got another third of a million to pay for the --

Q But it still would substantially enhance the economic picture for the well, would it not?

A Yes, as it would for Sun, too, if they put a compressor on theirs.

Q Have you studied the pool and looked at the decline rates well by well?

A I've looked at production graphs, yes, of everybody.

Q Do you think 10 percent is a realistic decline rate for the individual wells in this pool?

A It was at the time the order was written.

Q Do you think it is now?

A Probably not.

Q Now, Mr. McElvain originally came in and obtained approval of a 240-acre spacing and proration unit, the unit which is now dedicated to his well.

A That's right.

Q At that time did Phillips own the 80 acres that was nonstandard in the north half of Section 22?

A Yes, sir.

Q Did Phillips oppose Mr. McElvain's application?

A No, sir.

Q If Phillips had tried earlier it could have drilled a well at an earlier date, could it not, and --

A That's right.

Q -- it could have produced more reserves by getting into this pool earlier, would you agree with that?

A Yes, sir.

Q At the 1988 hearing did Phillips seek to be included in the north half unit in a 320-acre unit dedicated to the McElvain well?

A They were three proposals set out before the Commission through that hearing: Either let us have 160-acre nonstandard unit; let us force pool into a north half unit with McElvain; or let us force pool the west half

of Phillips operating the well drilled in the west half.

Q So one of those options was to put Phillips into the McElvain well, isn't that right?

A One of the options or one of the applications?

Q One of the things asked in the application as an alternative.

A Yes, uh-huh.

Q And so you were aware then that when you obtained an order from this Division if conditions changed the orders and rules would change, isn't that right?

A If conditions --

Q If conditions changed it was possible to change an order of the Division, isn't that correct?

A Yes.

Q And if Mr. McElvain had originally drilled the well in the (unclear) 240 acres someone still could ask to be included in that well.

A That is my understanding.

Q And you were aware --

A I don't think it's ever been done. It could be asked for.

Q And you were aware at the time that your acreage in the west half of the northwest quarter of Section 22 probably had suffered some pressure depletion over

the years, is that right?

A Oh, yes.

Q And you were aware that you had less than a standard unit to dedicate to the well --

A Yes, sir.

Q -- isn't that correct? All of those things would alert you that you might not get as good a well as some of the offsetting wells.

A Oh, definitely, yeah.

Q And you were also aware that penalties were being considered on the producing rates at that time.

A Yes, sir. And we asked for a penalty.

Q Now you need to lift the liquids by having a certain producing rate, if I understood your testimony.

A That's right.

Q You said you needed a million a day to lift the liquids. Is that what you said?

A Tc lift water.

Q Okay, now how much water is being produced in this well?

A Right now probably less than 10 percent but I don't know what it will grow to over the life.

Q Less than 10 percent of what?

A Of the total liquids being produced.

Q What are the total liquids being produced in the well?

A Let me look at the graph here. Oh, I don't have them on that, sorry. It's in the briefcase over there because I've got February's production in the -- 1900 MCF -- I don't recall the number.

Q Is it producing substantial volumes of water?

A No.

Q Is it producing substantial volumes of condensate?

A By substantial would you settle for, like, 3 or 4 a day? It's probably in that neighborhood.

Q In the range of 3 or 4 barrels a day?

A I believe that's -- I'm just -- I'm blank on that, because the well just loads up and dies.

Q Okay, it's not -- do you know if it's producing 10 barrels a day? Is it less than that?

A I'd say less than 10 barrels a day.

Q When you presented your Exhibit Number Four, I believe you testified this is a graph on the McElvain well?

A Yes.

Q That indicated the decline in the McElvain well production when the Sun well came on?

A Yes, sir.

Q I believe you stated that you thought that was partially attributable to drainage from the Sun well? Is that right?

A Well, I'm saying the effect of the Sun well on the total reservoir is felt by all the wells in the reservoir.

Q And it's because there's substantial communication from them, right?

A Definitely, good communication.

Q Your testimony was that you felt that the Sun well was draining from -- from your acreage, is that right?

A If I'm not producing them, yes, Sun would be draining from my tract, too.

Q Now, Sun has 320 acres dedicated to it in the south half of 15. If I understood your testimony, it was producing about 2.6-million a day, is that what you stated?

A I saw the January production figures Friday and I have it down here. Exhibit Two shows the Sun well in January of 1989 produced 2.6-million a day.

Q And then south of that common line, that section line, we had both your well and McElvain's well. What does the McElvain well -- was it producing at the same

time?

A The McElvain well was producing -- produced 3.8-million a day in January. The McElvain well is located 3 times as far from the common line as the Sun well.

Q And wouldn't you think, though, it was fair to say that this disparity in producing rates plus your well coming and making as much as 750 a day, that certainly you are counter-draining whatever may be drained by the Sun well?

A I'm counter-draining?

Q You and -- and McElvain together in the north half of 22?

A I don't think so. The Sun well being 660 from the south line, any drainage radius you draw on that well is going to substantially go into the McElvain acreage.

Q And you think that -- is that well, Sun well, at a standard location?

A Yes.

Q And isn't your well as close to that common lease line as the Sun well is to it?

A Yes.

MR. CARR: I have no further questions.

MR. LEMAY: Additional questions of the witness?

QUESTIONS BY MR. LEMAY:

Q I have a couple.

Is it your opinion that with -- given the deliverabilities as they currently exist that Sun is draining you more than you're draining them?

A As they currently exist, yes. Will my well support it? They're not draining much because there's not much there.

Q Another question that I asked Mr. Cielinski. Do you have any -- he testified that he thought the decline rate was in excess of 10 percent a year. Do you have any figure for an annual decline rate in the --

A I would probably just take the current McElvain decline rate since the Shell well came on -- I mean, excuse me, since the Sun well came on.

Q Any way of estimating what that is?

A A good guess would be in the neighborhood of 40 to 50 percent.

Q Given the order that we issued, the Commission issued on this case last July, was it your understanding, assuming, of course, that you did testify that a penalty was in order for 160-acre proration unit, was it

your understanding of that order that the penalty would be assessed against an estimated deliverability at the time of the hearing or after the fact assessment based on your well's performance after it was drilled?

A It was my understanding that the maximum penalty was imposed on the well by an order; that I should always be able to produce up to 3-million a day throughout the life of the well.

Q That wasn't my question.

A Excuse me, except a 10 percent decline.

Q That wasn't really my question. Was it -- was it your interpretation of reading our order that the deliverability was estimated prior to your drilling the well and therefor would be a decision in your drilling a well, and that it would be changed after the well was drilled, or that it would remain intact because it was the incentive to drill the well?

A It would remain intact because it was the incentive to drill the well.

MR. LEMAY: That's all I have. Are there any additional questions of the witness?

Mr. Losee?

MR. LOSEE: Just a couple because of prior questions.

CROSS EXAMINATION

BY MR. LOSEE:

Q Mr. Mueller, your estimate of decline in this reservoir was based, I think from your answer on declining production rates on the McElvain well?

A Yes, sir.

Q And your last number in your exhibit, if I remember right, was 86-million? 86,000?

A On my exhibit it shows 85.7-million in December. Then there was a January figure of 117.

Q Well, is the decline 117 -- the decline, excuse me, from January of 1988, where it produced 177, to January of 1989, where it was producing 117, is that a 40 percent decline or is it more like 25 percent decline?

A I think, sir, in looking at the history of the well up until June, 1988, I would estimate the decline to be in the neighborhood at that time, when it was the only major well in the reservoir, to be in the neighborhood of 10 to 20 percent, but starting in June, when the Sun well cam on, if you then go in and look at the decline rate in just the last six months, you can see that you're looking at something in the neighborhood of 50 percent or better.

Q Well, but that ignores the months in which it made 117,000.

A Right. I know there's a compressor installed but I don't know if it happened in January or not. That may be what kicked it up.

Q Would it also, some of the decline be based on the number of days the well was on production in the month?

A Yes, because I'm just using a monthly average here.

Q So that actually the market demand has as much to do with the decline in production rate, does it not, the ability to sell the gas --

A That's right.

Q -- every day of the month?

A Uh-huh.

Q And so that really production rate in today's market situation is not a very accurate means of determining the capability of a well, is it?

A In a normal gas field I'd answer no to that question, but I think in this one I have to say that as far as I know everybody out there is selling everything they can get and I don't know of any proration going on in the South Shoe Bar right now.

I think McElvain's -- your well is wide open, to my knowledge, and the Sun well is wide open, I think, and I know our well was.

Q I thought Mr. Cielinski said that his well wasn't on every day during the month when I cross examined him. Did I misunderstand him?

A I don't remember him testifying that.

Q I asked him about some particular months, whether his well was on every day during that month, and he said, no, to his knowledge he didn't think it was.

A Well, he may have some proration problems that I'm not aware of.

Q Okay, and if the wells do have -- are not on every day of the month, the production figures are not accurate, isn't that right, accurate as far as determining delivery capability of the well?

A That is true but I'll also say in looking at the January figures, in New Mexico your report shows every well produced 31 days in January.

Q And this well, during that month though, for example, McElvain's well made 117,000, did it not?

A That's right.

Q More than it did during the preceding 1, 2, 3, 4, 5 months.

A Yes, sir.

Q And isn't it true that the demand is larger starting in January, December, January, February and

March than it is in the summer and fall months?

A Yes, sir.

MR. LOSEE: I think that's all.

MR. LEMAY: Thank you, Mr. Losee.

Additional questions of the witness?

If not, he may be excused.

MS. AUBREY: I have no more witnesses.

MR. LEMAY: Mr. Garcia, do you have any witnesses?

MR. GARCIA: Marathon has no witnesses.

MR. LEMAY: Mr. Losee?

MR. LOSEE: I really want to see if I can introduce these production figures that show more (unclear) last month and I may call a witness but see if Mobil has, and I'll see if Mr. Carr might let me do it without -- without a witness.

MR. LEMAY: Ms. Tallmadge, do you have any witnesses you wish to put on?

MS. TALLMADGE: Not at this time.

MR. LEMAY: Mr. Losee, do you want to go off the record for a minute?

MR. LOSEE: Yes, really all I want to do is introduce production data that McElvain will testify to being in the Commission records.

(Thereupon a discussion was had off the record.)

MR. LEMAY: Let's go back on the record.

You have one witness, Mr. Losee?

MR. LOSEE: One witness, Mr. Broome.

(Mr. Broome sworn.)

GEORGE BROOME,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. LOSEE:

Q State your name, please.

A George Broome.

Q Do you have what's been marked as McElvain's Exhibit Number One in front of you?

A Yes, I do.

Q Was that exhibit prepared under your direction?

A Yes, it was.

Q What does it portray?

A It portrays the monthly production on the wells in the immediate vicinity of the McElvain "AC" Well from -- basically from first production. It has a -- the first column on the left is the cumulative through 1987 and the columns going toward the right are the monthly production through February, 1989, and the righthand column, the far right column, is the total cumulative for the wells from the OCD records that we've picked up.

Q Now, is there an error in the month of March data for the Shoe Bar State Com No. 1 Well, the Sun well, for March, 1989?

A That's correct, right. March and May are incorrect. Evidently when it was reproduced somebody copied the totals for the month. It appears that the totals for the month were put in a column for Sun's production, which is an error.

Q Okay. So that Sun's production, as their exhibit showed in the main case, was actually zero in

March and zero in May.

A That's correct. It appears to be that those were definitely the correct amounts.

MR. LOSEE: I move the introduction of McElvain Exhibit Number One.

MR. LEMAY: Without objection McElvain Exhibit Number One will be admitted into the record.

Additional questions? Yes.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Broome, just the monthly production rates as depicted on this exhibit don't actually show you what the well -- what a well is able to produce unless you know the number of days the well produced, isn't that correct?

A That's correct.

MR. CARR: That's all I have.

MR. LEMAY: Additional questions of the witness?

If not, he may be excused.

Are there any additional witnesses to be presented?

How about statements? Do we

have any statements for the record?

Ms. Tallmadge, any closing arguments after the statements?

MS. TALLMADGE: May it please the Commission, Mobil has recently drilled a well on the state acreage in the southeast quarter of Section 22 pursuant to the establishments of the 240-acre nonstandard spacing by issuance of the Commission's order in July, 1988.

Mobil supports Sun's conclusion here that drainage has occurred and is occurring in this reservoir. Mobil's position in July was that drainage was occurring by virtue of the McElvain -- production from the McElvain well and Mobil maintains that position through today.

We support Sun's position that correlative rights are not being protected under the current order; however, in order to prevent waste and protect correlative rights in the reservoir, we believe that it is essential to determine not only the amount of recoverable gas under our tract as it compares to recoverable gas in this pool, but also to determine how much of the gas can be recovered without waste.

Sun's proposal with no introduction is based purely on deliverabilty regardless -- and

all wells will be restricted regardless of their deliverability. This seems that wells could be (unclear) not necessarily restricted, and this could develop in premature abandonment of a well. If a well that's just economic to produce is restricted by virtue of the proposal suggested by Sun, the well may be economic and be abandoned and leave more reserves in the ground, which could have otherwise been produced.

Mobil therefor urges the Commission to grant Sun's application but to set some sort of minimum deliverability which would be applicable for the formula proposed by Sun (unclear.)

The -- the minimum suggested by Phillips of a million a day seems reasonable to Mobil and the Commission may consider that as a reasonable minimum, we believe.

Further, Sun's proposal suggests that deliverability be determined by semi-annual tests or whenever any operator would request them. This would develop an undue expensive burden to the operators of the subject well, we believe also, and I don't believe that Sun has shown any real need for such frequent testing; therefor, we suggest that if the application is granted that the deliverability tests be performed no more frequently then (unclear).

That's all I have.

MR. LEMAY: Thank you, Ms. Tallmadge.

Additional statements in this case?

If not, we can go to concluding arguments.

Ms. Aubrey?

MS. AUBREY: Thank you, Mr. Lemay.

Phillips came in here opposing Sun's application. I believe the testimony before you has shown with good reason. Even Sun agrees that the Phillips well should not be penalized to the extent that it cannot (unclear) the amount needed to lift the liquids from its well, from this well, and that amount (unclear).

Beyond that we would ask you to deny the application on the grounds that in July the Commission heard testimony in this matter. This matter was presented to the examiner in March of 1988. Phillips has relied upon the action taken by the Commission in its order issued in September, which clearly states that the Phillips well will not be penalized for (not clearly heard) a day.

Economics play a large part in the drilling of these wells. These are expensive wells.

Phillips has spent more than $700,000 on this well, which it would not have done if it knew that production from this well was going to penalized to the extent that the well could not (inaudible).

Oil and gas operators have the right to rely on Commission decisions, especially when the Commission takes a step like it did in September and sets an actual producing rate for a well which has not been drilled. It's not fair to the operators to require them to put a factor into their economic calculations which is sort of a "fudge" factor, and it proposes what will happen if the Commission changes its mind.

The Commission entered a clear order in September. It gave Phillips the (not clearly heard); Phillips relied on that; Phillips had a right to rely on that then and has a right to rely on it now.

We ask that the application be (unclear).

MR. LEMAY: Mr. Garcia?

MR. GARCIA: Marathon does not have a position at this time. We request the right to file a brief (inaudible clearly.)

MR. LEMAY: Mr. Losee?

MR. LOSEE: Mr. Lemay, it seems like Sun's application is based on rather poor ini-

tial judgment and they've waited 23 months after McElvain drilled a well to drill their well and then they delayed 15 more months putting it on line. I'm satisfied from all this data that drainage has occurred.

I would suggest that there is really no field in southeastern New Mexico that is still rated on deliverability, none that I know of.

Also McElvain submits that the production data used here to evidence the decline in producing capability rates of a well is not really very accurate proof because of market demand and because of stimulation or lack of stimulation in a well; because of compresion or not compression.

The ballgame has really changed in the last five or six years and the ability to take a production rate and assume that that has any close relationship to the capability of a well.

The 6-million figure used by the Commission was based on '86 and '87 production from the best well in the field and there's no showing that that wasn't a correct figure.

The -- as a matter of fact, since that hearing, although at the hearing there was assumed to be three wells drilled and all based in Section 22, each of them based on being able to deliver 6-million,

obviously the Phillips well has not based on Mr. Mueller's testimony and it's my understanding the Mobil well is not (inaudible).

Now Sun was present at the July hearing. They asked for a penalty against the non-standard wells, which the Commission gave them a penalty based on 6-million and a decline of 10 percent. Sun took no appeal from that order that was entered in September.

The ink was hardly dry on it until December and January of -- December of last year and January of this year they were filing applications for changes to amend it.

I would submit to the Commission that this is really a collateral attack on an order. Sun, if they felt the order was improper, based on improper data, should have taken an appeal and rather than waiting only two or three months, or four months, and filing an application to seek an amendment to it and this is really a collateral attack and the time (not clearly understood.)

MR. LEMAY: Thank you, Mr. Losee. I take it, Ms. Tallmadge, your statement was also concluding remarks?

MS. TALLMADGE: Yes.

MR. LEMAY: Mr. Carr.

MR. CARR: May it please

the Commission, Sun stands before you today asking you to amend two orders that were entered last September so that the orders will protect correlative rights.

The issue is simply this. Since those orders were entered conditions in the reservoir show that the parameters that were implemented in those orders upon which penalties were to be based simply don't apply. 6-million a day is too high. The decline rate of 10 percent is too low; it is a greater decline rate than that.

So we've come before you and we've asked you to adjust that order in a way we believe will meet your statutory duty to protect correlative rights, and that's what we're here for.

A good way to confuse somebody's application is to come in and start complaining about what they, Sun, has done. Let me tell you a couple of things about Sun. We stand before you as the only party who has really actively participated in this case. We drilled a well on a standard spacing unit. We drilled a well at a standard location.

Now, maybe our judgment wasn't great. Maybe we should have been there earlier. Phillips should have been there earlier, too.

We're not asking you to go

back and adjust one thing that happened prior to today. We're asking you to give us an opportunity from today forward to produce our just and fair share of the reserves in this pool. We're asking you to give us an opportunity to do that. We're asking you for our correlative rights.

Now, everyone can come in and say, well this is a collateral attack. Look at the exhibits we presented. You can see what has happened since the time (not clearly audible) and since that time we've been trying to figure cut what to do, drill an unnecessary, wasteful well, or to come in here and ask you to (not clearly understood) order. Everyone can scream, oh, well, they should get in here early. They've missed the chance. Let us go forward.

But if we look at the data presented here today, we have what Phillips hopes to get out of their well; what Mr. McElvain was getting in January, they're going to produce 4-1/2 million across the line with two wells from us with one that's producing 2.6.

I don't think that can be construed as giving us an opportunity without waste, without a wasteful well, another well, to produce our fair share of the reserves in the pool from this day forward. And that's what we're asking you to do, give us that chance.

Now we've had a lot of talk

about Phillips coming in and relying on the order and this is -- Ms. Aubrey tells you that that company should be able to rely on the Division orders. Let me tell you what I would submit a company should be able to rely on: That this Commission will act to protect correlative rights when a fact situation is brought before you where someone is being denied an opportunity to get his fair share of these production rates across a common boundary. We submit to you correlative rights are in fact being impaired.

You can change the rules. The rules of the game were changed on Mr. McElvain when Phillips came in here and attempted to -- to get into his unit. There was an application for that and the situation in these pools as they're developed constantly changes and as those changes come about rules have to be adjusted if you're to meet your statutory duty.

Now we come in today and we say, yes, well, what we've got to have is a million a day or we can't lift the water. We say, well, it's only 10 percent of the fluids in the well, the 3 or 4 barrels a day.They're not saying they need that to produce water. If you look at Exhibit Number Three which Phillips offered, here's a well that produces 200 to 300 MCF a day, it's lifting 14 barrels a day. There's nothing here that indicates that higher rates are needed to lift water.

The facts are pretty clear. We've got people here who have small units. They have more wells than we do and we think that if you don't do something to adjust the producing rates in a meaningful way, that spacing means nothing at all; that correlative rights means nothing at all.

And so we've come before you and ask you to do something about it and we propose that these wells be penalized not on what the best well in the pool did two years ago, but based on what the deliverability figures will show (unclear) today. There are wells out there all over New Mexico that because of their unorthodox location have to have semi-annual deliverability tests and against those production factors are applied to determine wells' producing rates. We think that same approach should be used here because when you do that, say this is what this particular well can produce. Deliverability is a factor of a number of things, but if we take into account those things, we can tell you what the well can do.

And then you say spacing is 320. That's what we presume these wells can drain and here I don't think anyone disputes that the wells drain very wide areas and one person has half a unit, one person has 2/3rds, and one person has a whole unit. So you take what

their well can do and you regulate it that way. We submit when you do that, you will in fact have protected correlative rights.

We think it is wrong to come in and to think that economic payout on any well has any bearing whatsoever to correlative rights. No one guaranteed Sun a payout when they went in and as it stands today, Phillips may pay their well out in 2-1/2 years, and I think it's ridiculous for that to become something that is weighed with correlative rights in determining what someone is entitled to produce.

Correlative rights is you get your share and if you were late, like we were late, and your share isn't there, then your share isn't there, but it shouldn't be adjusted and there shouldn't be a false factor plugged in like economic payout.

We think that what you must do, you must require that the wells in 22 be subject to semi-annual deliverability tests and the first one should occur within 30 days of the date of the order, and then against those test figures that a factor should be applied which accurately reflects the share of a standard unit that is dedicated to that well.

When you do that correlative rights will be protected and if we get into a situation

again where there's a radical change in the way the pool performs, we think an operator ought to be able to come to you and say things have changed again and we're going to run a special deliverability test because all of a sudden things are changing off and the bottom has fallen out, and we think that should be included in this order, too.

We've come before you with what we believe is a way to enable you to meet statutory obligation and with something we submit that you can and it will work when we ask you to amend the orders in question by requiring that production be regulated by the deliverability of the individual wells.

MR. LEMAY: Thank you, Mr. Carr.

Is there anything additional in Case Number 9651?

If not, we will leave the record open for one week so that those of you wishing to file briefs can do so, in order that we can close the record and take the case under advisement.

Thank you very much.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR